CONCERTONE
MODEL TR-100CONCERTONE
MODEL TR-100

GENERAL INFORMATION

The Concertone Model TR-100 is a two-speed, battery-operated tape recorder. The unit records on one half the tape width which doubles recording time of a reel of tape. Standard 3" reels are used along with standard-width recording tape.

The recorder speeds are $3\frac{3}{4}$ and $1\frac{7}{8}$ ips. Recording times for both sides of a standard reel of tape are:

Speed	Time
$3\frac{3}{4}$ ips	34 min.
$1\frac{7}{8}$ ips	70 min.

The power supply consists of one 9-volt battery and six $1\frac{1}{2}$ -volt batteries which are contained in the tape recorder case. An external AC power supply which allows the unit to be operated from an AC line voltage is also available.

Manufactured By:

American Concertone, Incorporated
9449 West Jefferson Boulevard
Culver City, California

HOWARD W. SAMs & CO., INC. Indianapolis 6, Indiana



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SET 590

FOLDER

SET 590 FOLDER 5

5.

FUNCTION OF CONTROLS

Function Selector

The function selector selects the different modes of operation. Turning the control in a clockwise direction from the Stop position places the unit in the rewind mode. Turning the control counterclockwise, from the Stop position, the first position places the unit in the Play mode. The second position in the counterclockwise direction, places the unit in the record mode.

Volume

This control varies the playback volume of the recorder and determines the recording level when making a recording.

VU Meter Switch

The meter switch determines the function of the meter. With the switch in the Volt position, the meter indicates the condition of the motor batteries. With the switch in the VU position, the meter is used to monitor the recording level.

AC-DC Switch

When the switch is in the DC position, the batteries are used to operate the unit. With the switch in the AC position, an external AC power supply must be connected to operate the recorder.

OPERATING INSTRUCTIONS

Threading the Tape

1. Place a full reel of tape on the supply spindle and an empty reel on the take-up spindle.
2. Unwind about 8 inches of tape from the supply reel. Thread the tape into the head slot and past the capstan making sure that the dull side of the tape faces the rear of the recorder.
3. Insert the free end of the tape into one of the radial slots in the reel and rotate the reel to secure the tape and take up the slack.

To Record from Microphone

1. Insert the Microphone plug into the jack marked "Mic".
2. Set the recorder up for the desired speed.
3. Rotate the Function selector to the Record position.
4. Hold the microphone about 6 inches from the mouth and speak in a normal, clear voice.
5. Adjust the volume level so that the needle stays within the red portion of the scale.

NOTE: Correct volume level on recording is very important.

Too weak a signal will result in weak playback and high background noise. Too strong a signal will result in distortion during playback.

To Record from a Radio or TV Receiver

Place the microphone about 6 to 12 inches in front of the radio or TV receiver speaker. Turn the radio volume control to a normal level. Set the recording level and record as described under "To Record from Microphone".

Dual-Track Recording

These recorders are designed to record and play on one-half the tape width at a time. After the first side of the tape is recorded, remove the full reel from the take-up spindle, turn the reel over, and place it on the supply spindle. Then record this side of the tape.

Rewind

To rewind the tape, rotate the Function selector control to Rewind.

To Change Tape Speed

To change the tape speed from 3 3/4 ips to 1 7/8 ips, remove the knurled thumbscrew (25) from the capstan shaft and lift off the capstan sleeve (18). Clean the capstan shaft of any oil before threading the tape.

To Play a Recording

1. Thread the tape as described under "Threading the Tape".
2. Turn the function selector to the Play position.
3. Adjust the Volume control to the desired listening level.

To Erase a Recording

In the Record position, any recording on the tape is automatically erased before a new recording is made. Should it be desired to erase a recording without recording new material, follow the normal recording procedure but set the Volume control to the zero position and disconnect the microphone.

To Edit and Splice Tape

NOTE: It is impossible to edit and splice one track without affecting the other. Recordings to be edited should be limited to one track recordings only.

1. Tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements can be inserted between selections, etc. Unused tape can be spliced for reuse.
2. For best results, cut the tape at a slight diagonal, butt the ends together, and fasten on the glossy side with splicing tape. Trim off any excess width.

DISASSEMBLY

To Remove the Mechanism from the Case

1. Remove two screws from the head cover and lift the head cover up from the transport.
2. Remove four screws from the front plate.
3. Remove the function selector knob. Set-screw can be reached through the front.
4. Remove two screws from the front and one below the AC/DC switch and lift front cover up, being careful not to break any wires.
5. Unsolder the meter wires and speaker wires. Tag these wires to insure proper replacement. Remove the AC/DC switch from the front cover.
6. Remove four screws from the transport cover plate. Remove the pressure roller and lift plate off.

7. Remove the transport from the case by removing two screws from the front and five from the bottom of the case. Carefully lift the transport up out of the case.
8. Remove screw from pressure pad assembly and lay the assembly over to one side.
9. Place the function selector in the Record position. Remove three screws holding the head and tape guide assembly. Remove the take-up belt (24) from the pulleys. Lift the head mounting plate (10) and lay to one side.
10. To reassemble the unit, reverse the foregoing procedure.

ADJUSTMENTS

Record-Playback Head Height

Remove the head from the head mounting plate (10) and place or remove fiber washers until proper head height is obtained.

Erase Head Height

Remove the erase head (12) from the head mounting plate (10) and place or remove fiber washers until

proper head height is obtained. Adjust the lead until the top edge of the pole pieces is even with the top edge of the tape.

Record-Playback Head Azimuth

Using a prerecorded tape, adjust the azimuth adjustment screws until maximum high frequency is obtained.

CLEANING

To insure proper performance, clean the heads, tape guides, and all driving surfaces with a commercial head cleaner or alcohol.

LUBRICATION

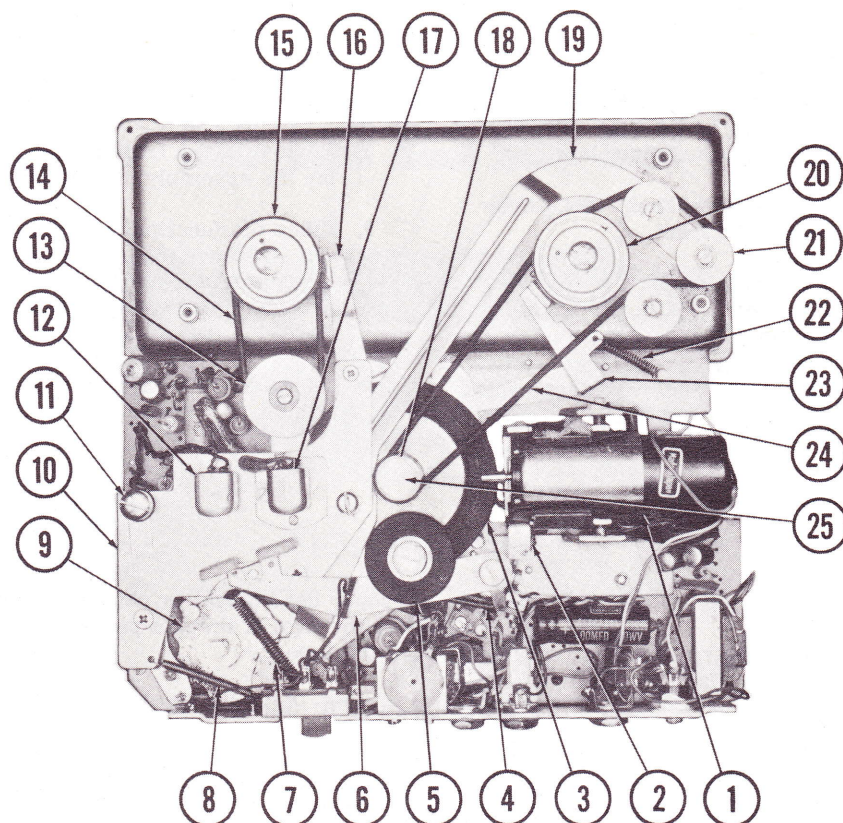
When the unit is dismantled for repair, all rotating parts should be lubricated. Using a good grade of light lubricating oil, place a drop on the capstan shaft, spindle shafts, pressure roller shaft, and drive pulleys. Wipe away all excess oil.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	4726-46	Motor	14	4726-32	Rewind Drive Belt
2		Motor Tension Spring	15	4726-36S	Supply Spindle Assembly
3	4726-31	Capstan Drive Wheel	16		Supply Spindle Brake Arm
4		Pressure Pad Tension Spring	17	4726-44	Record-Playback Head
5	4726-30	Pressure Roller	18	4726-40	Capstan Sleeve
6	4726-45	Pressure Pad Assembly	19		Take-up Actuating Arm
7		Function Cam Tension Spring	20	4726-36T	Take-up Spindle Assembly
8		Take-up Arm Return Spring	21	4726-35	Take-up Pulley (3)
9		Function Cam	22		Brake Arm Tension Spring
10		Head Mounting Plate	23		Take-up Spindle Brake Arm
11		Tape Guide	24	4726-33	Take-up Drive Belt
12	4726-43	Erase Head	25	4726-39	Capstan Sleeve Screw
13	4726-34	Rewind Pulley			

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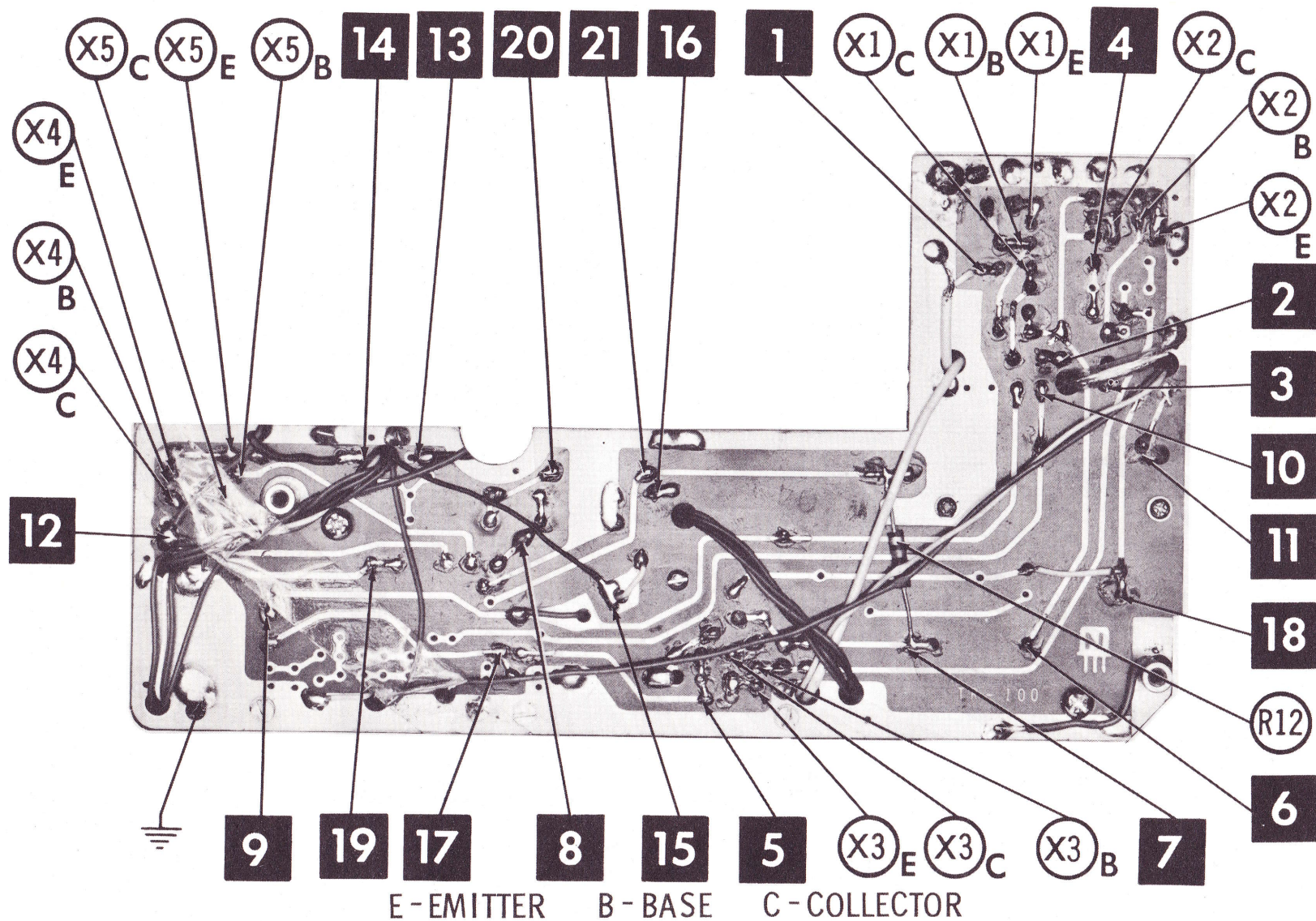
TOP VIEW OF MECHANISM WITH COVERS REMOVED

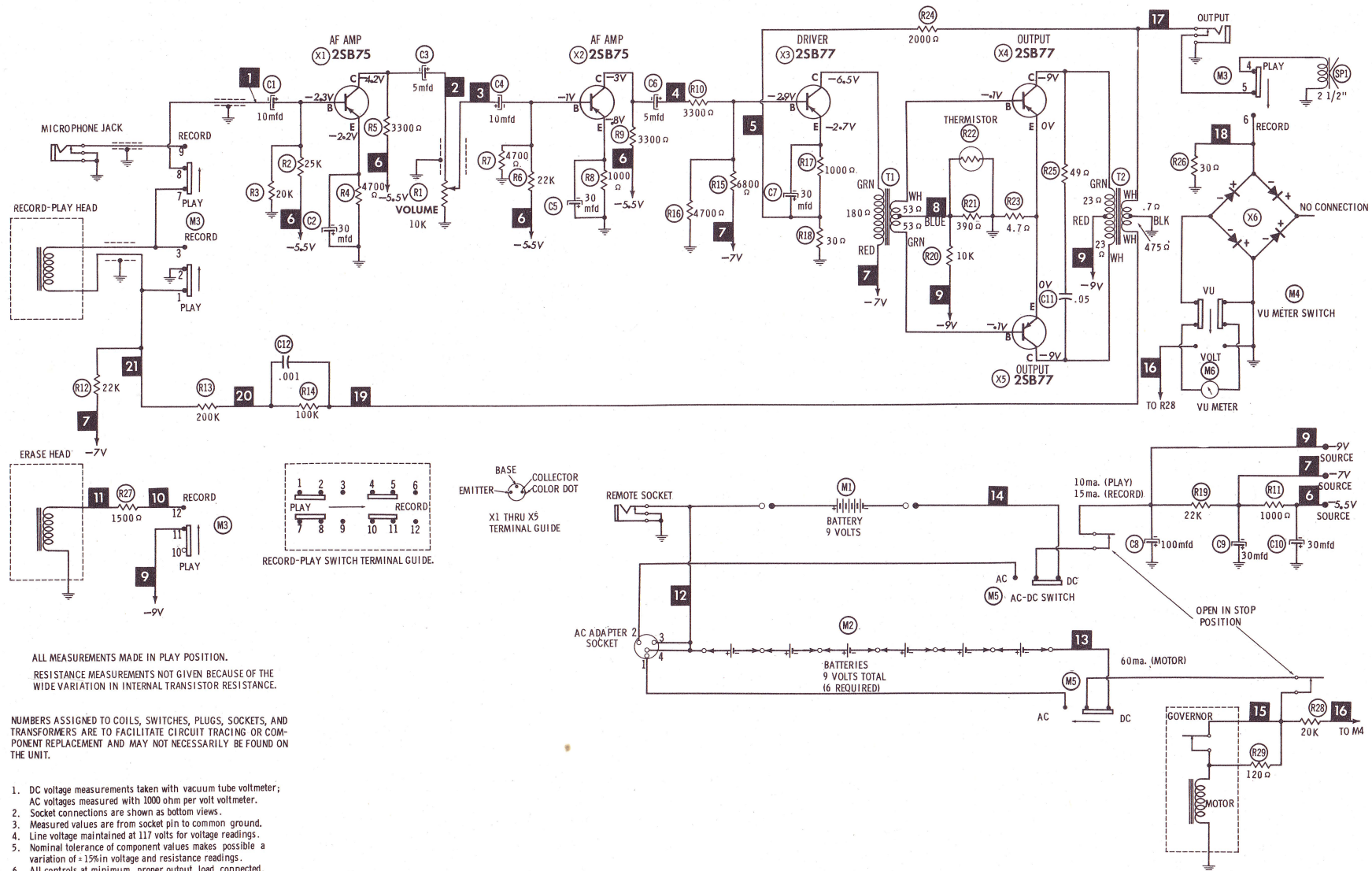
TROUBLE CHART

Symptom	Cause	Remedy
Transport will not operate on any function.	<ol style="list-style-type: none"> 1. Dead motor batteries. 2. Oil on capstan drive wheel (3). 3. Motor pulley tension spring (2) broken or disconnected. 4. AC/DC switch in wrong position for power source being used. 	<ol style="list-style-type: none"> 1. Replace motor batteries. 2. Clean capstan drive wheel (3). 3. Connect or replace motor pulley tension spring (2). 4. Set AC/DC switch to proper position for power source being used.
Low or no volume.	<ol style="list-style-type: none"> 1. Amplifier battery weak or dead. 2. Pressure pad tension spring (4) disconnected or broken. 3. Record-Playback head (17) not properly adjusted. 	<ol style="list-style-type: none"> 1. Replace the amplifier battery. 2. Connect or replace pressure pad tension spring (4). 3. Adjust Record-Playback head (17) as described under "Record-Playback Head Height".
No rewind.	<ol style="list-style-type: none"> 1. Rewind belt (14) broken or off pulley. 2. Oil on rewind pulley (13). 	<ol style="list-style-type: none"> 1. Place belt (14) back on pulley or replace. 2. Clean rewind belt (14) and pulleys.
No takeup.	<ol style="list-style-type: none"> 1. Take-up belt (24) broken. 2. Oil on take-up belt (24). 	<ol style="list-style-type: none"> 1. Replace take-up belt (24). 2. Clean take-up belt (24) and pulleys.
Wow and flutter.	<ol style="list-style-type: none"> 1. Oily or dirty driving surfaces. 2. Worn pressure roller (5). 3. Weak motor pulley tension spring (2) weak. 	<ol style="list-style-type: none"> 1. Clean all driving surfaces as described under "Cleaning". 2. Replace pressure roller (5). 3. Replace spring (2).
Motor is exceptionally noisy.	<ol style="list-style-type: none"> 1. Defective motor (1). 	<ol style="list-style-type: none"> 1. Replace motor (1).

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PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Power Cord	Use BELDEN No. 17106 (Plastic) or 17126 (Rubber) - 6 Ft. 17109 (Plastic) or 17129 (Rubber) - 9 Ft.
Power Cord (Interlock Type)	Use BELDEN No. 8874 (Rubber) or 8895 (Plastic)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401 or 8421
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor-Unshielded) 8429 (Two Conductor-Shielded) 8419 (Three Conductor-Shielded)

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2SB75	AF Amplifier	2N406		PNP
X2	2SB75	AF Amplifier	2N406		PNP
X3	2SB77	Driver	2N408		PNP
X4	2SB77	Output	2N408		PNP
X5	2SB77	Output	2N408		PNP

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.	RAYTHEON PART No.	
X6						Meter Rectifier, Bridge Type

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	CONCERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	10	3		PTT6	NLW10-6	MTI-5	TT3X10	TE-1053
C2	30	3		PTT10	NLW30-6	MTI-13	TT6X30	TE-1092
C3	5	6		PTT21	NLW5-15	MTI-3	TT6X5	TE-1084
C4	10	3		PTT6	NLW10-6	MTI-5	TT3X10	TE-1053
C5	30	3		PTT10	NLW30-6	MTI-13	TT6X30	TE-1092
C6	5	6		PTT21	NLW5-15	MTI-3	TT6X5	TE-1084
C7	30	3		PTT10	NLW30-6	MTI-13	TT6X30	TE-1092
C8	100	10		PTT46	NLW100-12	MTI-19	TT12X100	TE-1119.3
C9	30	10		PTT43	NLW30-15	MTI-14	TT10X30	TE-1158
C10	30	10		PTT43	NLW30-15	MTI-14	TT10X30	TE-1158

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
C11	.05		BPD-05	DD-503	CUB2S5	IDP-2-503	GPI50	5HK-S50
C12	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA			
			CONCERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	MALLORY PART No.
R1	Volume	10K	4726-22			

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R2	25K				R16	4700Ω			
R3	20K				R17	1000Ω			
R4	4700Ω				R18	30Ω			
R5	3300Ω				R19	22K			
R6	22K				R20	10K			
R7	4700Ω				R21	390Ω			
R8	1000Ω				R22	Thermistor			
R9	3300Ω				R23	4.7Ω			
R10	3300Ω				R24	2000Ω			
R11	1000Ω				R25	49Ω			
R12	22K				R26	30Ω			
R13	200K				R27	1500Ω			
R14	100K				R28	20K			
R15	6800Ω				R29	120Ω			

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CONCERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.3	1	4726-49 (4010)					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CONCERTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	200Ω CT	58Ω Tap@ 6-8Ω	4726-48 (4009)					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CONCERTONE PART No.	QUAM PART No.	
SP1	2 1/2"	PM	6-8Ω	4726-19		

BATTERIES

ITEM No.	VOLTAGE	CONCERTONE PART No.	REPLACEMENT DATA						NOTES	
			BURGESS		EVEREADY		MALLORY			
			"A"	"B"	"A"	"B"	"A"	"B"		
M1	9V	BL006P		2U6		216			M-1604	6 Required
M2	1½V	UM-3		930		1015			M-15R	

MISCELLANEOUS

ITEM No.	PART NAME	CONCERTONE PART No.	NOTES
M3	Switch		Function Selector
M4	Switch	4726-24	VU Meter (DPDT Slide Type)
M5	Switch	4726-24	AC-DC (DPDT Slide Type)
M6	Meter	4726-18	Record Level (Specify Series and Serial Number)